Maddalena Parafati, Ph.D.

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A. EDUCATION:

INSTITUTION AND LOCATION	DEGREE	COMPLETION DATE MM/YYYY	FIELD OF STUDY
"Sapienza" University of Rome (Rome, IT)	5-year Master of Science in Biology with Honors	10/2005	Cell and developmental biology
"Sapienza" University of Rome (Rome, IT)	Professional Qualification, 30/30	03/2007	Application of Biotechnology
"Sapienza" University of Rome (Rome, IT)	Master in Biotechnological Applications and Controls, 110/110	04/2007	Application of Biotechnology
University "Magna Graecia" of Catanzaro (IT)	Doctor of Philosophy	02/2010	Pharmaceutical Science
University "Tor Vergata" of Rome (Rome, IT)	Qualification to practice the profession of biologist	07/2011	Qualified Professional Biologist
"Sapienza" University of Rome (Rome, IT)	Master in Andrology and Seminology with Honors	04/2019	Assisted Reproductive Technology

B. CAREER/EMPLOYMENT:

Research Assistant Professor **Nov. 2020 to date**

University of Florida, Gainesville, FL

College of Pharmacy, Department of Pharmacodynamics

My research at UF includes the study of the cellular and molecular mechanisms for the identification of new age-related biomarkers in relevant 3D muscle model such as human engineered skeletal muscle tissues-on-a-chip (SMoC). This line of research, which incorporates patient-specific cells form muscle biopsies, covers the use of MoC in drug discovery for muscle atrophy as well as get new insights into the cellular biological adaptations of human skeletal muscle to space microgravity (SµG) to understand the role of SµG on human muscle physiology, such as muscle loss. The characterization studies, including RNA sequencing, Epigenetic, proteomics, secretome immunofluorescence and contraction displacement analysis serve as ground control for skeletal tissue chips in SµG aboard the ISS through a collaboration between NCATS at NIH and CASIS in partnership with NASA. Currently, our 3D SMoC platoforms have flown on SpaceX CRS-25 and -26 and transferred from the Dragon Capsule to the ISS and returned crucial scientific data to Earth. The long-term goal of the investigation is to provide treatment options for patients on Earth suffering from sarcopenia, a major healthcare problem, as well as develop therapeutics for astronauts during long-term SµG.
Also, as part of drug discovery approach, I am leading the development of human stem cell iPSC-derived hepato-spheroids from healthy and nonalcoholic steatohepatitis (NASH) donors carrying disease-related genetic mutations in the PNPLA3 gene, as a continued collaboration with FujiFilm Cellular Dynamics, using high-throughput confocal imaging. These 3D cell culture systems will contribute to model PNPLA3-associated NAFLD and to identify key pathways and genes in NAFLD progression and to develop novel therapeutic strategies for the treatment of the PNPLA3 variant-associated with increased risk to develop chronic liver diseases.

Post-Doctoral Research fellow **Jun. 2018- Oct. 2020**

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University Magna Graecia of Catanzaro, Italy

Faculty of Pharmacy, Laboratory of Molecular & Cellular Toxicology

My research focused on investigating the role of NQO2 enzyme in autophagy pathway and the cytoprotective effect of S29434, as NQO2 inhibitor, in primary astrocytes lacking NQO2. The data support a toxifying function of quinone oxidoreductase 2 (NQO2) in dopaminergic degeneration via negative regulation of autophagy and neuroprotection in astrocytes, suggesting a potential pharmacological target in PD. In addition, I evaluated BPF extract in inducing autophagy and its implication in hepatic lipid accumulation in a high-fat diet-induced NAFLD mouse model lacking NQO2 gene expression.

Consultant — Mar. 2018- May. 2018

Sanford Burnham Prebys Medical Discovery Institute, Orlando (FL, USA)

Scientist, Associate — Aug. 2017- Feb. 2018

Sanford Burnham Prebys Medical Discovery Institute, Orlando (FL, USA)

High-Content Drug Screening core facility of the Conrad Prebys Center for Chemical Genomics

I used the iPSC phenotypic drug discovery platform, developed during my postdoc, to screen AstraZeneca target-focused chemical library and to identify compounds that inhibit lipid accumulation in iPSC-derived hepatocytes based hepatic steatosis model under ER stress. The screening of 14,000 molecules led to discover of the mechanism of action of promising drugs as potential hepatic lipid lowering therapeutics for the treatment of hepatic steatosis.

Post-Doctoral Research Associate — Jul. 2015- Jul. 2017

Sanford Burnham Prebys Medical Discovery Institute, Orlando (FL, USA)

Translational Biology, Conrad Prebys Center for Chemical Genomics

My research established the development of phenotypic high content platform for phenotypic screening using hiPSC-derived hepatocytes to identify novel pathways that control ER stress-induced lipid accumulation by RNA-sequencing as potential therapeutics for NAFLD/NASH. I collaborated with a stem cell company, FujiFilm Cellular Dynamics, to develop the drug discovery platform using iPSC-derived hepatocytes under ER stress and with Astra Zeneca to utilize the company annotated library set.

Post-Doctoral Research — Jan. 2014- Jul. 2015

University Magna Graecia of Catanzaro, Italy

Faculty of Pharmacy, Laboratory of Molecular & Cellular Toxicology

As part of nutraceutical approach, I evaluated of the protective role of bergamot (BPF) extract against hepatic lipid accumulation in Cafeteria-fed rat model. I identified that the liver is the main target of BPF supporting the concept that supplementation of BPF is an effective strategy to prevent NAFLD by stimulation of lipopahgy and inhibiting inflammation.

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Industrial R&D Molecular Cell Biologist — Nov. 2012- Jan. 2014

EISAI Co. Hatfield, UK

European Knowledge Centre, Drug Discovery and Development

In the biotechnology industry I screened and characterized novel immunotherapeutic drug candidates targeting Amyloid-β protofibrils (Aβ-PF) and hyperphosphorylated tau as therapeutic for the treatment of Alzheimer's disease in preclinical studies. I tested monoclonal antibodies for efficacy and potency against Aβ-PF and hyperphosphorylated tau with a whole range of cell and molecular biology techniques. In particular, I worken on the antibody generation project by developing cell toxicity of Aβ-PF platforms to test the neutralization effect of BAN2401 (lecanemab), which currently is in Phase 3 clinical trials and used for the treatment of early Alzheimer's disease to reduce the protein's presence in the brain and potentially slow the progress of the disease. Also, considering the important role of microglial cells in the CNS and in Alzheimer's progression, as the main immune agents, I worked on microglia screening platform for phospho-Tau up-take.

Post-Doctoral Research — Jul. 2010- Jul. 2012

University Magna Graecia of Catanzaro, Italy

Faculty of Pharmacy, Laboratory of Molecular & Cellular Toxicology

I contributed to evaluate the effect of toxin paraquat (PQ) on autophagy-related markers and the role of NQO2 during PQ-induced oxidative stress. The research project proposed a new approach to treat PQ poisoning in vivo and in vitro in order to find an antidote to counteract PQ toxicity which leads to Parkinson's disease-like symptoms in mice due principally to the action of NQO2. Our findings demonstrated that NMDPF, a melatonin analog, potentially antagonized non-apoptotic PQ-induced cell death, reactive species generation and inhibited cellular NQO2 activity.

PhD Student International Research Scholarship — Nov. 2006- Feb. 2010

Southern Research Institute Birmingham (USA)/University "Magna Græcia" of Catanzaro, Italy
Drug discovery Laboratory/Department of Health Sciences

My PhD research, at *Magna Græcia* University, focused the expression and purification of recombinant Protease Nexin-1 in bacterial-based systems and to test the its ability of neurite outgrowth promotion in NB2A neuroblastoma cell line. Then, in 2008 during my PhD, I started to build my international experience at *Southern Research Institute* (SRI), one of the most competitive research institutes in Alabama. At the SRI, I conducted studies in rat primary astrocytes on serine proteases MASP3 expression and demonstrated that MASP-1 and -3, significant mediators in the lectin complement signaling pathway of the innate immune response, are secreted at basal levels by glioblastoma cell lines.

Master Student in Biotechnological Applications and Controls — Nov. 2005- Apr. 2007

Joint Master Research Thesis: Sapienza-University of Rome/University "Magna Græcia" of Catanzaro

As part of Master training program, in 2006, I worked on experimental thesis focused on the expression and purification of extracellular domain of proteinase-activated receptor 2(PAR2) in a bacterial-based expression system at University Magna Græcia of Catanzaro and I presented my thesis and research work at the Sapienza-University of Rome committee

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Post-graduate position **Nov. 2005- Sep. 2006**

Sapienza-University of Rome
Department of Animal and Human Biology

Described tyrosine hydroxylase (TH) localization in *P.* reticulata brain *as* neuroanatomical reference for neurotoxicological studies.

C. MENTORSHIP, TECHING AND UNIVERSITY SERVICE:

University of Florida, College of Pharmacy, Research Assistant Professor **Feb. 4-5, 2024**

Served on a Faculty panel to judge scientific posters of graduated student for 37th Annual Research Showcase

University of Florida, College of Pharmacy, Research Assistant Professor **Nov. 2020 to date**

Provide training and mentoring to undergraduate and graduate students and scientists in the laboratory. Provide training during laboratory rotations for Ph.D. candidate students

University of Florida, College of Pharmacy, Research Assistant Professor **Feb. 6-7, 2023**

Served on a Faculty panel to judge scientific posters of graduated student for 36th Annual Research Showcase

University Magna Graecia of Catanzaro, Post-Doctoral Research fellow **Jun. 2018- Oct. 2020**

Provide training and mentoring to undergraduate and graduate students and scientists in the laboratory

University Magna Graecia of Catanzaro, Post-Doctoral Research fellow **Jan. 2014- Jul. 2015**

Provide training and mentoring to undergraduate and graduate students and scientists in the laboratory

University Magna Graecia of Catanzaro, University Tutor **2008- 2018**

Expert and member of the examination committee for Biochemistry and Inorganic Chemistry courses

University Magna Graecia of Catanzaro, Biochemistry Tutor and Biology Teacher **2006- 2012**

Ensuring the cultural and professional formation of students, study guidance, for Applied and General Biochemistry and Biology courses

Sapienza-University of Rome, Cellular and Developmental Biology Assistant **Nov. 2005- Jun. 2006**

Assisting laboratory exercises in developmental biology lab course for embryology part using Zebrafish and Poecilia reticulata models at the Department of Animal and Human Biology

D. FELLOWSHIPS AND SCHOLARSHIPS:

- National fellowship, Research Center for Food Safety & Health (Catanzaro, IT); **2018**
- International pre-DTL fellowship, Sanford Burnham Prebys (FL-USA); **2015**
- National fellowship, Research Center for Food Safety & Health (Catanzaro, IT); **2014**
- International Travel Grant Winner at Southern Research Institute (AL-USA) from University Magna Græcia of Catanzaro; **2008**
- International Scholarships Search at Southern Research Institute (AL-USA) from University Magna Græcia of Catanzaro; **2008-2009**
- National Scholarships award (Master ACB) financed by Lazio Region (Rome, IT); **2005**

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E. INVITED PEER-REVIEWER JOURNAL ARTICLES:

- International Journal of Molecular Sciences
- Biology
- Life
- Journal Food
- Molecules
- Biomolecules

F. CONTRIBUTION TO SCIENCE:

1. **Parafati M** et al., & Malany S. Comprehensive RNA seq Analysis in Contracting Engineered Donor-Specific Skeletal Muscle During Tomatidine Treatment. *Manuscript in preparation*
2. **Parafati M** et al., & Malany S. Spaceflight Induces Fiber-Type Shifting and Different Stress Responses in Electrically Stimulated Donor-derived Myobundles. *Manuscript in preparation*
3. **Parafati M** et al., & Janda E. Dramatic suppression of lipogenesis gene expression is the main effect of bergamot flavonoids in fatty liver disease. *Manuscript in preparation*
4. Thwin Z*, **Parafati M***, Osan R, Giza S, Platt D, Coen P, Malany LK, Cozmuta I & Malany S. Muscle lab-on-chip to monitor real-time contractile function in spaceflight. *Manuscript submitted:* ***Lab on a Chip*** (30 Dec 2023)
5. Procopio AC, Paravati MR, Scarlata GGM, **Parafati M**, Milic N, Luzza F & Abenavoli L. Is the Mediterranean diet a good preventive measure for NASH? *Manuscript submitted:* ***Hepatoma Research.*** (21 Nov 2023)
6. Janda E, **Parafati M**, Martino C, William JNG, Mollace V & Boutin JA. Autophagy and Neuroprotection in Astrocytes Exposed to a 6-Hydroxydopamine is regulated by NQO2: a possible role in Parkinson's disease. ***Scientific Report***. 2023; 13, 21624.
7. **Parafati M**, Giza S, Shenoy TS, Mojica-Santiago JA, Hopf M, Malany LK, Platt D, Kuel P, Moore I, Jacobs Z, Barnett G, Schmidt CE, McLamb B, Clements T, Coen PM & Malany S. Human skeletal muscle tissue chip autonomous payload reveals changes in fiber type and metabolic gene expression due to spaceflight. ***Nature PJ Microgravity***. 2023; 9, 77.
8. Giza S, Mojica-Santiago JA, **Parafati M**, Malany LK, Platt D, Schmidt CE, Coen PM & Malany S**.** Microphysiological system for studying contractile differences in young, active and old, sedentary adult derived skeletal muscle cells. ***Aging Cell****. 2022*;21(7):e13650*.*
9. Janda E, Martino C, Riillo C, **Parafati M**, Lascala A, Mollace V & Boutin JA. Apigenin and Luteolin Regulate Autophagy by Targeting NRH-Quinone Oxidoreductase 2 in Liver Cells. ***Antioxidants***. 2021; 10(5): 776.
10. **Parafati M**, Bae SH, Kirby RJ, Fitzek M, Iyer P, Engkvist O, Smith DM & Malany S. Pluripotent Stem Cell-Derived Hepatocytes Phenotypic Screening Reveals Small Molecules Targeting the CDK2/4-C/EBPα/DGAT2 Pathway Preventing ER-Stress Induced Lipid Accumulation. ***International Journal of Molecular Sciences***. 2020; 15;21(24):9557.
11. Capomolla AS, Janda E, Paone S, **Parafati M**, Sawicki T, Mollace R, Ragusa S & Mollace V. Atherogenic index reduction and weight loss in metabolic syndrome patients treated with a novel pectin-enriched formulation of bergamot polyphenols. ***Nutrients***. 2019; 11(6):1271.

12. Pellegrino D, Giordano F, Marrone A, **Parafati M**, Janda E & LaRussa D. Oxidative imbalance and kidney damage in cafeteria diet-induced rat model of metabolic syndrome: effect of bergamot polyphenolic fraction. ***Antioxidants***. 2019; 8(3):66.
13. **Parafati M**, Kirby RJ, Khorasanizadeh S, Rastinejad R & Malany S. A nonalcoholic fatty liver disease model in human induced pluripotent stem cell-derived hepatocytes, created by endoplasmic reticulum stress induced steatosis. ***Disease Models and Mechanisms***. 2018; 11: 1-15.
14. **Parafati M**, Lascala A, La Russa D, Trimboli F, Pellegrino D, Mollace V & Janda E. Bergamot Polyphenols Fraction (BPF) boosts therapeutic effects of the diet on Non-Alcoholic Steatohepatitis (NASH) induced by "junk food. ***Nutrients***. 2018; 10(11):1604.
15. Pagliara V*, **Parafati M***, Adornetto A, Grimaldi M, White MC, Masullo M & Arcone R. Dibutyryl-cAMP- or Interleukin-6-induced astrocytic differentiation enhances Mannose Binding Lectin (MBL)-Associated. ***Arch Biochem Biophys***. 2018; 653:39-49.
16. Lascala A, Martino C, **Parafati M**, Salerno R, Oliviero M, Pellegrino D, Mollace V & Janda E. Analysis of proautophagic activities of Citrus flavonoids in liver cells reveals the superiority of a natural polyphenol mixture over pure flavones. ***Journal Nutritional Biochemistry***. 2018; 58:119-130.
17. **Parafati M**, Lascala A, Morittu V, Trimboli F, Rizzuto A, Brunelli A, Coscarelli F, Costa N, Oliverio E, Britti D, Isidoro C, Mollace V & Janda E. Bergamot polyphenol fraction prevents non-alcoholic fatty liver disease via stimulation of lipophagy in cafeteria diet-induced rat model of metabolic syndrome. ***Journal Nutritional Biochemistry***. 2015; 26(9):938-48.
18. Janda E, Lascala A, Carresi C, **Parafati M**, Aprigliano S, Russo V, et al. Parkinsonian toxin-induced oxidative stress inhibits basal autophagy in astrocytes via NQO2/quinone oxidoreductase 2: Implications for neuroprotection. ***Autophagy***. 2015; 11(7): 1063-8010.
19. Janda E, **Parafati M**, Aprigliano S, Carresi C, Visalli V, et al. The antidote effect of Quinone Oxidoreductase 2 (QR2) inhibitor on paraquat-induced toxicity in vitro and in vivo. ***British Journal of Pharmacology***. 2013; 168: 46-59.
20. Arcone R, Chinali A, Pozzi N, **Parafati M**, Maset F, Pietropaolo C & De Filippis V. 2009. Conformational and biochemical characterization of a biologically active rat recombinant Protease Nexin-1 expressed in E. coli. ***Biochimica et Biophysica Acta***. 2009; 1794: 602-614.
21. **Parafati M**, Senatori O & Nicotra A. 2009. Localization of tyrosine hydroxylase immunoreactive neurons in the forebrain of the guppy *P. reticulata*. ***Journal of Fish Biology***. 2009; 75(6):1194-205.

Book Chapters

Parafati M & Malany, S. 2021. "iPSCs in Tissue Engineering: IPSC Derived 3D Human Fatty Liver Models "Induced Pluripotent Stem Cells-Novel Concepts" in ***Advances in Stem Cell Biology***, edited by Alexander Birbrair, Elsevier Publishing Oxford UK, 2021, 271-285.

Invited Talks

1. **Maddalena Parafati,** Skeletal Muscle Microphysiological System to Model Sarcopenia. 5th World Aging and Rejuvenation Conference (ARC-2023). Frankfurt, Germany. July 26-27, 2023.2023 – Virtual

2. **Maddalena Parafati**, Human induced pluripotent stem cells in drug discovery. Science Day Guest Speaker. FUJIFILM Cellular Dynamics Philadelphia, USA. 2021 – Virtual

3. **Maddalena Parafati**, Human iPSC-derived Hepatocytes for Non-alcoholic Fatty Liver Disease Modeling. iForum Meeting US - Cellular Dynamics International. Philadelphia, USA. 2016 – In person

4. **Maddalena Parafati**, Strategies and Biomarkers for NAFLD Modeling. Sanford Burnham Prebys Medical Discovery Institute seminar series – Orlando (FL-USA), 07/2017. In person

5. **Maddalena Parafati**, Targeting Nuclear receptors in a phenotypic in vitro model of fatty liver disease. Sanford Burnham Prebys Medical Discovery Institute seminar series – Orlando (FL-USA), 12/2015. In person

6. **Maddalena Parafati**, Regulation of Lipophagy in the "Cafeteria" diet-model of Fatty Liver Disease by Natural Polyphenols. Research Center for Food Safety & Health. Catanzaro, Italy. 2014 – In person

Recent Posters

1. Samantha Ali, **Maddalena Parafati**, Siobhan Malany & Mei He. Unravelling multi-OMIC signaling pathways: exploring EVs in skeletal muscle under varying conditions for therapeutic nanomedicine in space. University of Florida, College of Pharmacy 37th Research Showcase. Gainesville, USA. February 5-6, 2024.

2. **Maddalena Parafati**, LeGrand Malany, Paul Coen & Siobhan Malany. Skeletal Muscle-on-a-chip for Assessing Muscle Gene Expression Changes in Responses to Anabolic Stimuli in a Ground Control Study. Space Summit 2023: Chips in Space & Extracellular Vesicles 2023: Drug Delivery, Biologics & Therapeutics: Diagnostics, Delivery, Therapeutics. Orlando, USA. July 26-27, 2023.

3. Karly Caples, **Maddalena Parafati** & Siobhan Malany. A high-throughput platform for evaluating skeletal muscle disease therapeutics. College of Pharmacy Symposium. UF Gainesville. Feb 6 - 7, 2023.

4. Zon Thwin, **Maddalena Parafati**, Mojica-Santiago JA, LeGrand Malany, Tushar Shenoy; Christine Schmidt, Paul Coen, Donald Platt & Siobhan Malany. Real time contraction analysis of Muscle-on-a-chip on the ISS. American Society for Gravitational and Space Research. Houston, USA. November 9 - 12, 2022.

5. Tushar Shenoy, **Maddalena Parafati**, Jorge Mojica-Santiago, Paul Coen, Christine Schmidt, LeGrand K. Malany & Siobhan Malany. Drug Efficacy Testing in Skeletal Muscle Microphysiological System. University of Florida, College of Pharmacy Research 35th Showcase (Gainesville, USA); February 7-8, 2022.

6. Tushar Shenoy, **Maddalena Parafati**, Jorge Mojica-Santiago, Paul Coen, Christine Schmidt, LeGrand K. Malany & Siobhan Malany. Drug Efficacy Testing in Skeletal Muscle Microphysiological System to Develop Spaceflight Countermeasures to Muscle Atrophy. American Astronautical Society's Wernher von Braun Memorial Symposium, University of Alabama-(Hunstsville, USA); October 12-14, 2021.

7. Shelby Giza, LeGrand K. Malany, Jorge Mojica-Santiago, Tushar Shenoy, **Maddalena Parafati**, Don Platt, Meghan Hopf, Paul Coen & Siobhan Malany. Electrical Stimulation of Human Myocytes in Microgravity: An In Vitro Model to Evaluate Therapeutics to Counteract Muscle Wasting. - 18th NIH Tissue Chip Consortium Meeting (USA); March 30-31, 2021.

8. Siobhan Malany, **Maddalena Parafati** & Sang Bae. High-throughput Screening in a Human iPSC-derived Hepatocyte Model of Steatosis Reveals CDK2/4 Pathway Inhibitors Ameliorate Phenotype. - 11th World Congress on Alternatives and Animal Use in the Life Sciences (WC11)- Maastricht (Netherlands); August 23- September 2, 2021.

9. **Maddalena Parafati**, Sepideh Khorasanizadeh, Fraydoon Rastinejad, & Siobhan Malany. Human iPSC-derived Hepatocytes for Non-alcoholic Fatty Liver Disease Modeling. Stem Cells for Drug Discovery & Toxicity Screening. Boston, USA. July 10-11, 2017.

10. **Maddalena Parafati**, Sepideh Khorasanizadeh, Fraydoon Rastinejad, & Siobhan Malany. Human iPSC-derived Hepatocytes for Non-alcoholic Fatty Liver Disease Modeling. iForum Meeting US - Cellular Dynamics International. Philadelphia, USA. 2016.

11. **Maddalena Parafati**, Antonella Lascala, Valeria Morittu, Francesca Trimboli, Antonia Rizzuto, Elvira Brunelli, Francesca Coscarelli, Nicola Costa, Manuela Oliverio, Domenico Britti, Ciro Isidoro, Vincenzo Mollace, & Elzbieta Janda. Bergamot polyphenol fraction prevents non-alcoholic fatty liver disease via stimulation of lipophagy in cafeteria diet-induced rat model of metabolic syndrome. Food Processing Innovation and Green Extracion Technologies: Recent Advances and Application in Human health. Catanzaro, Italy. September 25-26, 2014.

12. Janda E, **Parafati M**, Aprigliano S, Carresi C, Visalli V, Ventrice D, Sacco I, Mega T, Musolino V, Palma E, Gratteri S, Rotiroti D & Mollace V. The antidote effect of quinone oxidoreductase 2 (QR2) inhibitor on paraquat-induced toxicity in vitro and in vivo. 1st Joint Meeting of the Italian-Israeli Societies for Neuroscience Catania, Italy. Aprile 19-22 p.192, 2012.

13. Janda E, Carresi C, Russo V, Aprigliano S, Vadala N, **Parafati M**, Gliozzi M, Isidoro C and Mollace V. Dysregulation of authophagy by PQ-induced oxidative stress. A mechanistic link to Parkinsons's disease? Poster session in XIV Congress of the Italian Society of Neuroscience. First joint meeting with Israel Society for Neuroscience. Catania, Italy. Aprile 19-22 p.32, 2012.

14. Adornetto A, **Parafati M**, Pietropaolo C & Arcone R. Studies on biochemical and cellular properties of protease Nexin-1 in glioblastoma and neuroblastoma cells. "XII Workshop on Apoptosis in Biology and Medicine"; Parghelia, Italy. May 20-22, 2009.

15. **Parafati M** & Arcone R. Expression of protease nexin-1-like protein in NGF- treated Glioblastoma and Neuroblastoma cells. The Italian Journal of Biochemistry, 56(3): 198. (SIB) Riccione, Italy. 2007.

16. Setini A, Senatori O, **Parafati M**, Scirocco A & Nicotra A. Partial sequence analysis and biomedical behaviour of monoamine oxidase in Poecilia reticulata liver. Proceedings, pp. 26. (ELSO), Nice, France. 2008.

17. **Parafati M**, Scirocco A, Senatori O, Setini A & Nicotra A. Catecholamines metabolism in Poecilia reticulata brain: effects of short-term exposure to heavy metals. Proceedings, pp. 221. (ELSO) Dresden, Germany. 2005

Attended Conferences as Co-author

1. Siobhan Malany & **Maddalena Parafati**. Biomechanics and transcriptomic studies to evaluate the anti-atrophy potential of tomatidine during spaceflight in young- and old-derived human skeletal muscle-on-a-chip – 23rd NIH Tissue Chip Consortium Meeting. Bethesda, USA. January 10-11, 2024.

2. Siobhan Malany, **Maddalena Parafati,** LeGrand Malany & Paul Coen. Biomechanics and transcriptomic studies to evaluate the anti-atrophy potential of tomatidine during spaceflight in young- and old-derived human skeletal muscle-on-a-chip. American Society for Gravitational and Space Research. Washington, D.C., USA. November 14 - 18, 2023.

3. Siobhan Malany, **Maddalena Parafati**, LeGrand Malany & Paul Coen. Applying Analytics to Muscle Tissue Chip Real-Time Biomechanics for In-Space Biomonitoring of Tissue Degradation. Select Bio Space Summit 2023: Chips in Space. Orlando, USA. July 26-27, 2023.

4. Zon Thwin, **Maddalena Parafati**, Paul Coen, Karly Caples, Ioana Cozmuta, Remus Osan & Siobhan Malany. Muscle microphysiological system to model tissue degradation: Opportunities to study the impact of microgravity and accelerate drug development. MPS World Summit; Berlin, Germany. June 26-30, 2023.

5. Jorge Mojica-Santiago, **Maddalena Parafati**, LeGrand Malany, Don Platt, Christine E. Schmidt, Paul Coen & Siobhan Malany. Electrical pulse stimulation and compounds with anti-atrophic potential influence contractile response of patient-derived skeletal muscle cells in a microphysiological system. MPS World Summit; New Orleans, USA. May 30 – June 3, 2022.

6. Siobhan Malany, **Maddalena Parafati**, Jorge Mojica-Santiago, LeGrand Malany, Zon Thwin, Donald Platt, Christine Schmidt & Paul Coen. Autonomous Muscle-on-chip payloads for drug discovery and development in space. 2022 ISS Research and Development Conference. Washington. July 25-28, 2022.

7. Jorge Mojica-Santiago, **Maddalena Parafati**, LeGrand Malany, Don Platt; Christine E. Schmidt, Paul Coen & Siobhan Malany. Electrical stimulation influences contractile response of human myocytes in ground and microgravity environmental conditions using an in vitro model to evaluate therapeutics against muscle wasting. 19th NIH Tissue Chip Consortium Meeting (USA); February 10-11, 2022.

8. Elzbieta Janda, Anotnella Lascala, Cristina Carresi, Sara Aprigliano, Vanessa Russo, Elena Ziviani, **Maddalena Parafati**, Vincenzo Musolino, F. Morani, Ciro Isidoro & Vincenzo Mollace. Prolonged oxidative stress inhibits basal autophagy while inducing pro-autophagic signals in astroglial cells: role of quinone oxidoreductase 2 (QR2). 36° Congresso Nazionale della Societa` Italiana di Farmacologia. Torino (Italy). September 23-26, 2013.

Acknowledged contributions

Boi, L.; Pisanu, A.; Palmas, M.F.; Fusco, G.; Carboni, E.; Casu, M.A.; Satta, V.; Scherma, M.; Janda, E.; Mocci, I.; et al. Modeling Parkinson's disease neuropathology and symptoms by intranigral inoculation of preformed human α-synuclein oligomers. Int. J. Mol. Sci. 2020, 21, 8535.

G. MEMBERSHIPS

Tissue Engineering and Regenerative Medicine International Society	2023-Present
Biochemical Society	2023-Present
American Society for Gravitational and Space Research	2023-Present

H. CURRENT DUTIES AND RESPONSIBILITIES

- I lead the characterization of a 3D micro-engineered skeletal muscle tissues-on-a-chip; I perform quality control of primary cell lines and prepare primary human skeletal muscle tissues-on-a-chip for microgravity and drug testing;
- I conduct research by conducting literature reviews to bridge the gaps in existing literature; I collect and analyze data and prepare materials for publication;
- I provide ready access to all experimental data for the faculty the supervisor. I monthly summarize project results and prepare progress reports for the funding agency.
- I prepare materials for submission to granting agencies and foundations.
- I mentor and supervise undergraduate students, scientist, Ph.D. students
- I attend project meetings, faculty meetings and seminars.
- I manage and respond to project related email;
- I request or acquire equipment or supplies necessary for the project and monitor the project budget.

I. SKILLS AND METHODOLOGIES:

Identify literature gaps in the field of a particular disease and build research questions or formulate new hypotheses; positive attitude on problem solving/troubleshooting; time and project management; collaborative research; revise and write manuscript for publications; develop in vivo and in vitro

pharmacology tools for preclinical drug discovery; animal model handling and development for research; isolation and handling of primary cells (astrocytes, neurons, microglia, hepatocytes and myoblasts) and transformed cells culturing techniques; enrichment and differentiation of myoblasts and fibroblasts grown engineered small devices; iPSC handling for development of drug screen platform; development and characterization of microgravity platform; molecular biology; extract nucleic acid (RNA, miRNA and DNA) for gene expression by RT-qPCR, RNA-sequencing and methylome studies; extract extracellular vesicle from conditioned media to characterize EVs cargos; isolate intracellular and secreted proteins and analysis by Western blotting; ELISA, plasmid isolation and amplification by mini- and midi-prep for cell transfection; confocal microscopy; histology and immunofluorescence techniques; purification of recombinant protein produced in mammalian cell line and in bacteria; experience optimizing in vitro cell-based assay to screen antibodies for therapeutic use and test the presence and development of anti-drug product antibodies; data analysis